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EXAMINER	
MOTSINGER, SEAN T	
ART UNIT	PAPER NUMBER
2635	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/22/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	**Application No.** 10/685,968	**Applicant(s)** RANTANEN ET AL.
	Examiner Sean Motsinger	**Art Unit** 2635

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 October 2003*.
2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-46* is/are pending in the application.
  4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-12 and 15-46* is/are rejected.
7)☒ Claim(s) *1,2,8,11,13,14,20,26-29,34,37-39,42,44 and 45* is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on *14 Occtober 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.
  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
  Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  a)☒ All b)☐ Some * c)☐ None of:
    1.☒ Certified copies of the priority documents have been received.
    2.☐ Certified copies of the priority documents have been received in Application No. _____.
    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
  * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
  Paper No(s)/Mail Date *8/31/05,04/26/04,1/15/04*.
4) ☐ Interview Summary (PTO-413)
  Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Objections to the Drawings

1. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because figures 1, 5, and 11 require descriptive legends in the functional blocks. 37 CFR 1.84(o) states: Suitable descriptive legends may be used subject to approval by the Office, or may be required by the examiner where necessary for understanding of the drawing. They should contain as few words as possible. Applicant is advised to employ the services of a competent patent draftsperson outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Objections to the Claims

2. Claim 1, 2, 8, 11, 19, 20, 26, 27-29, 38, 34, 35, 37, 38, 39, 42, 44, and 45 are objected to because of the following informalities. Appropriate correction is required.

3. Re Claim 1, Claim 1 is objected to because the Claim does not clearly point out what applicant intends as steps of the method. Furthermore Applicant does not state whether the methods is "comprising" or "consisting of" said steps. For the purpose of examination examiner believes that the steps applicant intends to Claim as steps the

part of the Claim following "in which method." Furthermore examiner believes applicant intends for his Claim to comprise of said steps.

4. Re Claims 2,8,10,11,20,26,28,29, Claims 2,8,10,11,20,26,28,29,are objected to because the Claims do not clearly point out what applicant intends as steps of the method. Furthermore Applicant does not state whether the methods is "comprising" or "consisting of" said steps. Examiner makes the interpretation that applicant intends for his Claim to comprise of steps the indented subject matter as steps and applicant intends for his Claim to comprise said steps.

5. Re Claim 19, Claim 19 appears to intend dependency however fails to list the Claim from which it depends. For the purposes of examination examiner has made the interpretation that the Claim depends from Claim 1. Also in Claim 19 "the color component" lacks antecedent basis. For the purpose of examination examiner has made the interpretation that applicant intends Claim to read "the color components belong" after "where in"

6. Re Claims 34,37,39,42, Claim 34,37,39,42 are objected to for failing to clearly define his means for limitations. Examiner has made the interpretation that applicant intends for each "for" at the start of each indent is intended to associate with its own "means" making each indent a means plus function limitation.

7. Re Claim 34, Claim 34 is objected too because “the ratio” lacks antecedent basis. For the purposes of examination examiner makes the interpretation that “the ratio” was intended to read “a ratio.”

8. Re Claim 35, Claim 35 is objected too because “the means for determining the ratio”, lacks antecedent basis. For the purposes of examination examiner makes the interpretation that Claim 35 was intended to depend from Claim 34

9. Re Claims 27-29, Claims 27-29 are objected to because first color component lacks antecedent basis.

10. Re Claim 44, is objected to because a computer storage means cannot comprise instructions. For the purposes of examination examiner has made the interpretation that applicant intended “A storage means for storing a computer software product, where in the computer software comprises.”

11. Re Claim 45, Claim 45 takes dependency from Claim 27, however this does not make sense as Claim 27 is a method and Claim 44 is directed to a article. For the purposes of examination examiner has made the interpretation that Claim 45 was intended to depend from Claim 44.

Rejections under 35 U.S.C. 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

12. Claim 45-46 rejected under 35 U.S.C. 101 because the Claimed invention is directed to non-statutory subject matter. Claims 45-46 are directed only to software, which is non-statutory.

Rejections under 35 U.S.C. 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more Claims particularly pointing out and distinctly Claiming the subject matter which the applicant regards as his invention.

13. Claim 2-11, 20-32, 33-45 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly Claim the subject matter which applicant regards as the invention.

14. Re Claims 2, 20, 34, and 39 these are indefinite because applicant recites a maximum value and a minimum are selected to obtain at least two change values. It is unclear how one could have more then two change values if only a maximum and minimum are selected.

15. Re Claims 3, 21, 35, 40, these are indefinite because it is unclear what applicant intends when applicant recites “a first change value and another change value.” Are

these different from the "original change values" and "change values" and if not which are they selected from? For the purposes of examination examiner will assume that they refer to change values determined by the minimum and maximum of change values.

16. Re Claim 33-45, Claims 33-45 recite means plus function Claims which invoke 35 U.S.C. 112 6th paragraph, the disclosure lacks sufficient structure to define what applicant intends. 35 U.S.C. 112, sixth paragraph states that a Claim limitation expressed in means-plus-function language "shall be construed to cover the corresponding structure...described in the specification and equivalents thereof." "If one employs means plus function language in a Claim, one must set forth in the specification an adequate disclosure showing what is meant by that language. If an applicant fails to set forth an adequate disclosure, the applicant has in effect failed to particularly point out and distinctly Claim the invention as required by the second paragraph of section 112." In re Donaldson Co., 16 F.3d 1189, 1195, 29 USPQ2d 1845, 1850 (Fed. Cir. 1994) (in banc). For the purpose of advancing prosecution, the Claims are treated below on the interpretation that applicant intends any reasonable means for accomplishing such function.

Rejections under 35 U.S.C. 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

17. Claims 1, 12, 15-19, 33, 38 are rejected under 35 U.S.C. 102(b) as being anticipated by Tsai et al US 5,712,227 hereinafter "Tsai".

18. Re Claim 1, Tsai discloses method for sharpening colours in an image comprising at least a first and a second colour component, the pixels comprising information of the first colour component being located at least partly in locations different from the pixels comprising information of the second colour component. (see figure 3) Note the pixels containing the green information are in different locations for the red and blue pixels. In which method said first colour component and said second colour component are interpolated. (see column 10 lines 55-60) Note interpolation is completed prior to sharpening, and at least said first colour component is sharpened (See column 12 lines 7-13) Note all color components receive the sharpening effect. The sharpening of said second colour component is controlled on the basis of the sharpening of said first colour component. (see column 11 lines 2-12 and column 12 lines 7-13) Note the high frequency components are extracted from the green pixels and added back in to increase sharpness. This high frequency component is also added to red and blue so the sharpening of these colors is based on the sharpening of the green.

19. Re Claim 12, Tsai further discloses, wherein the sharpening of said second colour component is based on the extent of the change caused by the sharpening of the first colour component on the first colour component. (see column 12 lines 7-13) Note that the extent of the sharpening of the green blue and red is based on the high frequency of the green component. Therefore the extent of sharpening is based upon the extent of sharpening on the green component.

20. Re Claim 15 Tsai further discloses, wherein the method is used for sharpening at least two other colour components. (see column 12 lines 7-13)

21. Re Claim 16 Tsai Further discloses wherein the first colour component is the one with the greatest number of pixels and/or the greatest effect on the luminance of the image. (See figure 3 and column 11 lines 1-5) Note that the green pixels occur much more frequently and contain the most luminance information.

22. Re Claim 17 Tsai further discloses wherein the sharpening is amplified at the pixels representing an edge. (see column 11 lines 5-15) Note Tasi is performing edge enhancement, using a band pass filter and adds these high frequency components (edges) back in. This will inherently amplify the sharpening around the edges.

23. Re Claim 18 Tsai further discloses wherein the sharpening is limited, if the change caused by the sharpening is greater than that determined. (see column 11 lines 55-65) Note the sharpening is limited if the sharpening would be too great for a particular feature.

24. Re Claim 19 Tsai further discloses wherein the colour component belongs to a colour system which has been selected from the group RGB, CMY, CMYK, HSI, or YUV. (See abstract) Note that RGB is used.

25. Re Claim 33, Claim 33 recites only the means for the steps of Claim 1 however no specific means was recited in the specification except an allusion to the fact that the system could be implemented on a digital camera. Tsai discloses using his device on a digital Camera. (see column 1 lines 15-25 and rejection for Claim 1)

26. Re Claim 38, Claim 38 recites the same features as Claim 33 the only difference being a sight difference of description in the preamble. A system and a device, and a method for sharpening colors in an image and a method for forming an image are not substantially different therefore the rejection for Claim 33 holds.

27. Claims 20-23, 25-28,31-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Roetling US 5,343,309 hereinafter "Roetling."

28. Re Claim 20 Roetling discloses a method for processing digital signals in an image comprising at least one colour component (see column 8 lines 30-32) Note Roetling suggests his method could be adapted to color. Wherein for processing a colour component, the change of the colour component is computed in at least two different directions to obtain at least two original change values. (see column 6 lines 53-57) From the computed original change values, a maximum value and a minimum are selected to obtain at least two change values. (see column 6 lines 64-70) Note a maximum and minimum gradient magnitude are selected. Note A ratio is determined based on said change values. (see column 6 lines 64-70)

29. Re Claim 21 Roetling further discloses wherein the ratio is determined to be computed between a first change value and another change value. (see column 6 lines 64-70) Note there is a ratio between the maximum and minimum change values.

30. Re Claim 22, Roetling further discloses wherein said first change value is the smaller of the absolute values of the selected minimum and maximum values. (see column 6 lines 64-70) Note the ratio uses the minimum of the magnitude (absolute value) of the gradient.

31. Re Claim 23, Roetling further discloses wherein said other change value is the larger of the absolute values of the selected minimum and maximum values. (see

column 6 lines 64-70) Note the ratio uses the maximum of the magnitude (absolute value) of the gradient.

32. Re Claim 25, Roetling further discloses wherein the determined ratio is used to control the degree of processing of the colour component. (See column 7 lines 1-15) Note the ratio is used to control the aspect ratio (ie degree of processing).

33. Re Claim 26, Roetling further discloses wherein for the control: at least one limit value is selected, the determined ratio is compared with at least one limit value, wherein the result of the comparison is used to control the processing of the first colour component. (see figure 4) Note the aspect ratio of the filter changes if the ratio is determined "small" "medium" or "large." (see column 7 lines 15-30) There must be some limit value to decide between small medium or large.

34. Re Claim 27, Roetling further discloses wherein the first colour component is processed, if said ratio is smaller than said limit value. (see column 7 lines 15-30) Note that the image is still processed if the ratio is small.

35. Re Claim 28, Roetling further discloses, The method according to Claim 25, wherein for the control: at least a first limit value and a second limit value are selected, the determined ratio is compared with said first and second limit values, wherein the result of the comparison is used to control the processing of the first

colour component. (see column 7 lines 15-30) There must be some limit value to decide between small medium or large.

36. Re Claim 31 Roetling discloses wherein the processing is sharpening. Note the process is sharpening a low pass filtering such that sharpness is maintained. (See column 7 lines 10-15)

37. Re Claim 32, Roetling further discloses A digital filter, for processing digital signals in an image comprising at least one colour component, wherein the digital filter is arranged to implement the method of Claims 20. (see column 6 lines 64-70 and rejection for Claim 20) Note Roetling disclosure constitutes a filter for accomplishing his method.

Rejections under 35 U.S.C. 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

38. Claim 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsai in view of Slotznick US 2001/0055951 hereinafter "Slotznick."

39. Re Claim 43 Tsai discloses all the aspects of Claim 38 Tsai does not disclose where in the device comprises means for mobile communication. Slotznick integrate a camera into a cell phone, which is capable of mobile communication. (see paragraph 34) One would be motivated to use Slotznick do so to achieve all of function listed in paragraph 34 on one device. Therefore it would have been obvious to one skilled in the art at the time of invention to combine the aforementioned references to reach the aforementioned advantage.

40. Claim 44, 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsai in view of Glotzbach et al US 2002/0041761 hereinafter "Glotzbach."

41. Re Claim 44 Tsai discloses a method for sharpening colours in an image with at least a first and a second colour component, and the pixels comprising information about the first colour component being placed at least partly in different locations than the pixels comprising information of the second colour component, which comprises interpolating said first colour component and said second colour component, and computer commands for performing sharpening, which also comprises controlling the sharpening of said second colour component on the basis of the sharpening of said first colour component. (see rejection for Claim 1) Tsai

further discloses his process done on a "data processor" (see figure 1). Tsai does not disclose a storage means for storing a computer software product, where in the computer software comprises said method. However, it would obvious to execute the method via software, which must be stored on some computer readable medium, in view paragraph 25 of Goltzbach, which implements a similar method in software. Note Goltzbach discloses a platform for which to program the camera functions as well as a method for interpolation (see paragraph 82). One of ordinary skill in the art would be motivated to implement executing said commands on a processor via software because the reference is silent on how to implement this aspect. Therefore one of ordinary skill in the art would have found it obvious to create the corresponding software to implement the invention.

42. Re Claim 46 see rejection for Claim 44. Note that here it Claims just the software not the software on a medium therefore the rejection for Claim 44 covers all of Claim 46.

43. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Roetling in view of common knowledge in the art.

44. Re Claim 30 Roetling discloses the method of Claim 1, Roetling also says that the method can be used for color information as well (see rejection for Claim 1) . Roetling does not discloses the color system he would use. RGB, CMY, CMYK, HSI,

or YUV are notoriously well known color spaces of which one of ordinary skill in the art would be motivated to select from due to Roetlings silence on the issue. Therefore it would have been obvious to one of ordinary skill in the art to select from these to adapt the system of Roetling for color

Allowable Subject Matter

45. Claims 2-11, 13-14, 24, 29, 34-37, 39-42, and 45 are objected to as being dependent upon a rejected base Claim, but would be allowable if rewritten in independent form including all of the limitations of the base Claim and any intervening Claims and if issues described above under Claim objections rejections under 35 U.S.C. 101 and rejections under 35 U.S.C. 112 are resolved. The following is a statement of reasons for the indication of allowable subject matter: Claim 13 contains allowable subject matter because Tsai does not include the further limitation where a reference value is compared to the extent of sharpening caused to the first image. Claims 2, 34, 39, and 45 contain allowable subject matter because while the elements of these Claims are found in Roetling (see rejection for Claim 20 as the Claimed steps are the same). However it would not be obvious to combine Roetling with Tsai because there is no motivation to combine the two references. Claim 24 contains allowable subject matter because Roetling does not include the further limitation of selecting a change value for the ratio by selecting a value closer to the value having a larger absolute value then to the smaller absolute value of the

minimum and maximum. Claim 29 contains allowable subject matter because Roetling processes the component in some manner regardless of the size of the Ratio. All other Claims contain allowable subject matter due to the fact that the depend from a Claim which contains allowable subject matter

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sean Motsinger whose telephone number is 571-270-1237. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marvin Lateef can be reached on 571-270-1245. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Sm
Motsinger
December 7, 2006

DANIEL SWERDLOW
PRIMARY EXAMINER